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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,055

Applicant(s)

THOMPSON ET AL.

Examiner

Dennis Myint

Art Unit

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 21-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to communications: Original Application filed on 10 October 2003 and Applicant's response to requirement for restriction and election filed on 03 August 2006.

2. Claims 1-24 are currently pending in this application. Claims 1, 21, and 24 are independent claims.

Election/Restrictions

3. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-20, drawn to accessing database objects in an integration server system, classified in class 707, subclass 10.

II. Claims 21-24, drawn to determining sequence attribute values of data objects in a database schema for database manipulations, classified in class 707, subclass 101.

The inventions are distinct, each from the other because of the following reasons:

Inventions as listed in Group I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to separately usable. In the instant case, invention of these two groups has separate utility such as follow:

Group I teaches accessing database objects in an integration server system and Group II teaches determining sequence attribute values of data objects in a database schema for database manipulations.

Because these inventions are distinct for the reasons given above and have required a separate status in the art as shown by the different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFE 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventor ship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

In the Applicant's communication filed on 03 August 2006 in response to the office action mailed on 03 July 2006, the Applicant elected the claims of Group I (claims 1-20) without traverse.

Claim Objection

4. Claim 14 is objected to because the claim recites the limitation "arc" which is not defined and described in the specification.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

MPEP 2106 IV.B.2.(b) states that "a claim that requires one or more acts to be performed defines a process. However, not all processes are statutory under 35 U.S.C. 101. *Schrader*, 22 F.3d at 296, 30 USPQ2d at 1460. To be statutory, a claimed computer-related process must either: (A) result in a physical transformation outside the computer for which a practical application in the technological arts is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application within the technological arts".

MPEP 2106.II.A states that "**a process that consists solely of the manipulation of an abstract idea is not concrete or tangible. See *In re Warmerdam*, 33 F.3d 1354, 1360, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994)**".

Claims 1 in view of the above-cited MPEP sections are not statutory because they merely recite a number of computing steps without producing any tangible results and/or being limited to practical application within the technological arts. The claims do not indicate use of hardware on which the software runs to perform the steps recited in the body of the claim. Software or program can be stored on a medium and/or executed by a computer. In other words the software must be computer-readable. **The use of a computer is not evident in the claim.** MPEP 2106.IV.B.1(a) refers to "computer-readable" medium with computer program encoded on it."

Claims 2-20 are rejected under 35 U.S.C. 101 because said claims depend on claim 1.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 1, 2, and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mullins (U.S. Patent Number 5857197).

As per claim 1, Mullins is directed to a integration server system (Figure 1 and Column 3 Line 65 through Column 4 Line 6) and teaches the limitations:

“a database schema configured to store a set of data object instances” (Column 4 Line 6 through Column 5 Line 65, and Figure 1: 200, 201, and 203 i.e., *meta data 201 and object schema 200.*) Note the disclosure *object schema 200 as in The object schema 200 is accessed by an object application 101 through an abstract layer 600 which does the necessary conversions between object and non-object views and also as in Figure 1 further illustrates how the object schema manager 203 facilitates the*

creation and maintenance of the object schema 200, thereby increasing productivity and reducing the opportunities for typographical errors, which can create preventable runtime errors.

Also note the disclosure meta data 201, as in The object schema manager 203 allows data store administrators to create and maintain an object view of data store content 301 stored in the data store 302. The object schema manager 203 reads, writes, and updates the meta data 201; meta data 201 as in This meta data 201 then serves as a map for operations available on the datastore(s) 302, for the way these operations should be performed and under what conditions; meta data 201 as in This is accomplished by paring down the non-object data store schema 300 into its various components including tables, fields, and conditions 305 in one embodiment. The parking makes the creation, management, and access to the meta data 201 to be a convenient and elegant task.);

"a metadata model representing a configuration of the set of data object instances in the database schema" (Column 4 Line 6 through Column 5 Line 65, and Figure 1: 200, 201, and 203 i.e., meta data 201 and object schema 200; Note that combination of meta data 201 and object schema 200 functions just as said metadata model.);

"a model application programming interface adapted to provide a client application with access to the set of data object instances" (Figure 1: 700 and 400 and Column 4 Line 6 through Column 5 Line 65, i.e., consistent API 700 , the first adapter 400, and the second adapter 500); and

“a metadata application programming interface adapted to provide a client application with access to the set of data object instances via the metadata model” (Column 4 Line 6 through Column 5 Line 65 and Column 7 Line 55 through Column 8 Line 18, i.e., *second adapter 500*).

Referring to claim 2, Mullins teaches the limitations:

“wherein the database schema includes a table having a plurality of rows and columns adapted to store the set of data object instances;” (Column 4 Line 6 through Column 5 Line 65, and Figure 1: 200, 201, and 203 i.e., *meta data 201 as in the use of meta data 201 (i.e. data used to describe other data) to define how to access and convert non-object data store content 304 to objects and back; and meta data 201 as in One embodiment of the present invention directed to accessing non-object (e.g. relational) data stores 302, creates meta data 201 based on data store schema 300 comprising tables, fields and causes or conditions 305, making up the data store 302.)* and

“the metadata model includes a representation of the table” (Column 4 Line 6 through Column 5 Line 65, and Figure 1: 200, 201, and 203 i.e., *meta data 201 and object schema 200*; Note that combination of meta data 201 and object schema 200 functions just as said metadata model.).

Referring to claim 3, Mullins teaches the limitation:

“wherein the model application programming interface is adapted to access the set of data object instances via the metadata application programming interface” (Column 4 Line 6 through Column 5 Line 65, and Figure 1: 200, 201, and 203 i.e., *meta data 201 and object schema 200*; Note that combination of meta data 201 and object schema 200 functions just as said metadata model. Figure 1: 700 and 400 and Column 4 Line 6 through Column 5 Line 65, i.e., *consistent API 700, the first adapter 400, and the second adapter 500*. Thus, first adapter 400 and second adapter 500 (i.e., model application programming interfaces) access object instances through combination of meta data 201 and object schema 200 (i.e., metadata application programming interface).

9. Claim 1, 2, 3, 16, 17, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Trappen et al., (hereinafter “Trappen”) (U.S. Patent Application Publication Number 2004/0015814).

Referring to claim 1, Trappen teaches the limitations:

“a database schema configured to store a set of data object instances” (Figure 1: ENTITY METADATA (ID, ETC) 22, and Paragraphs 0053-0056);

“a metadata model representing a configuration of the set of data object instances in the database schema” (Paragraphs 0071-0087, i.e., *Object model 200* and Figure 3 and Figure 4) and

“a model application programming interface adapted to provide a client application with access to the set of data object instances via the metadata model” (Paragraph 0071, i.e., “Each of the objects in Fig. 3 includes an application interface

that exposes a variety of different methods which are described in greater detail in Appendix A hereto.).

Referring to claim 2, Trappen teaches the limitations:

“wherein the database schema includes a table having a plurality of rows and columns adapted to store the set of data object instances;” (Trappen, Figure 1: ENTITY METADATA (ID, ETC) 22, *and Paragraphs 0053-0056*) and “the metadata model includes a representation of the table” (Paragraphs 0071-0087. It is inherent that a UML model would include all the representations of a database schema that said model represents, including a representation of tables.) and

“the metadata model includes a representation of the table” (Paragraphs 0071-0087. It is inherent that a UML model would include all the representations of a database schema that said model represents, including a representation of tables.).

Referring to claim 3, Trappen teaches the limitation:

“wherein the model application programming interface is adapted to access the set of data object instances via the metadata application programming interface” (Paragraph 0071, i.e., *“Each of the objects in Fig. 3 includes an application interface that exposes a variety of different methods which are described in greater detail in Appendix A hereto.; and Paragraphs 0071-0087, i.e., Object model 200 and Figure 3 and Figure 4).*

Referring to claim 16, Trappen teaches the limitation:

“further including a generator adapted to create the database schema in response to a model description” (Paragraph 0071, i.e., *Data Access System 12* as in Figure 1 and as in *Fig. 3 shows a UML class diagram implemented by data access system 12*. in Paragraph 0071).

Referring to claim 17, Trappen teaches the limitation:

“wherein the model description defines a data object hierarchy using the unified modeling language” (Paragraph 0071, i.e. *UML class diagram*).

Referring to claim 18, Trappen teaches the limitation:

“wherein the generator creates an instance of a data object in the database schema” (Figure 3, and Paragraphs 0071-0077).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of Komine et al., (hereinafter "Komine") (U.S. Patent Number 6728727) and further in view of Brickmore et al., (hereinafter "Brickmore") (U.S. Patent Application Publication Number 2003/0206170).

Referring to claim 4, Trappen does not explicitly teach the limitations:

"wherein the database schema includes a sequence attribute adapted to preserve an ordered association between the set of data object instances, such that an intermediate sequence attribute instance has a random value between a pair of values of a pair of adjacent sequence attribute instances."

Komine teaches the limitation:

"wherein the database schema includes a sequence attribute adapted to preserve an ordered association between the set of data object instances" (Komine, Column 15 Line 39 through Column 16 Line 8, i.e., *sequence identification number (sid)*).

Brickmore teaches the limitation:

"such that an intermediate sequence attribute instance has a random value between a pair of values of a pair of adjacent sequence attribute instances" (Paragraph

0057, i.e., *“assigns a random number to the variable, where the number will be inclusive between the two numbers specified”*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of employing sequence attributes (sequence identification numbers) as taught by Komine and the feature of generating an intermediate sequence attribute instance has a random value between a pair of values of a pair of adjacent sequence attribute instances as taught by Brickmore to the system of Trappen so that, in the resultant system, the database schema would include a sequence attribute adapted to preserve an ordered association between the set of data object instances, such that an intermediate sequence attribute instance has a random value between a pair of values of a pair of adjacent sequence attribute instances. One would have been motivated to do so in order to make it possible for managing a series of data elements of an identical basic data type (Komine, Paragraph 0071) and to ensure said management of data elements of an identical data types even further.

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of Komine and further in view of Brickmore and further in view of Burges (U.S. Patent Application Publication Number 2003/0236787).

Referring to claim 5, Trappen in view of Komine further in view of Brickmore does not explicitly teach the limitation: “wherein the intermediate sequence attribute instance has a floating point value”.

Burges teaches the limitation:

“wherein the intermediate sequence attribute instance has a floating point value” (Paragraph 0026). Burges teaches the use of a value which is in the range of positive and negative floating point values.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of using a floating point number as taught by Burges to the system of Trappen in view of Komine further in view of Brickmore so that the resultant system would comprise a sequence number which a floating point number.

13. Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of O’Leary (U.S. Patent Application Publication Number 2001/0050675).

Referring to claim 6 Trappen does not explicitly teach the limitation:

“wherein the database schema is adapted to alternately store an instance of a string-valued attribute of the set of data object in a first data-type or a second data-type in response to the length of the instance of the string-valued attribute”.

O’Leary teaches the limitation:

“wherein the database schema is adapted to alternately store an instance of a string-valued attribute of the set of data object in a first data-type or a second data-type in response to the length of the instance of the string-valued attribute”(O’Leary, Paragraph 0047). Note that the dataset of O’Leary’s system includes data fields, which comprise two different fields for fixed-length strings and variable-length strings. It is inherent in the system of O’Leary that these two fields are employed in response to the length of string input.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of employing two data fields for both fixed and variable length strings as taught by O'Leary to the system of Trappen so that the resultant system would comprise a data schema which is adapted to alternately store an instance of a string-valued attribute of the set of data object in a first data-type or a second data-type in response to the length of the instance of the string-valued attribute. One would have been motivated to do so in order to obtain a more flexible system for storing and accessing datasets (O'Leary, Paragraph 0007).

Referring to claim 7, O'Leary teaches the limitations:

"wherein the first data-type is a fixed-length data structure having a predetermined size and adapted to store the instance of the string-valued attribute in response to the instance of the string-valued attribute having a length less than the predetermined size, and wherein the second data-type is a variable length data structure adapted to store the instance of the string-valued attribute in response to the instance of the string-valued attribute having a length greater than the predetermined size" (Paragraph 0047).

Note that the dataset of O'Leary's system includes data fields, which comprise two different fields for fixed-length strings and variable-length strings. It is inherent in the system of O'Leary that these two fields are employed in response to the length of string input. As such, said field for fixed-length strings would stores strings with of the string-valued attribute having a length less than the predetermined size (the length of the filed

for fixed-strings) and said field for variable-length strings would store strings with having a length greater than the predetermined size.

14. Claims 8, 9, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of O'Leary and further in view of Oba et al. (hereinafter "Oba") (U.S. Patent Number 5303147).

Referring to claim 8, Trappen in view of O'Leary does not explicitly teach the limitation: "wherein the model application programming interface is adapted to receive the instance of the string-valued attribute from a client program, to determine the length of the instance of the string-valued attribute, and to direct the instance of the string-valued attribute to either the first data-type or the second data-type in response to the length of the instance of the string-valued attribute".

Oba teaches the limitation:

"wherein the model application programming interface is adapted to receive the instance of the string-valued attribute from a client program, to determine the length of the instance of the string-valued attribute, and to direct the instance of the string-valued attribute to either the first data-type or the second data-type in response to the length of the instance of the string-valued attribute"(Column 4 Line 53 through Column 5 Line 6).

Note that the system of Oba comprises explaining statement definition storage unit, which stores both fixed-length strings (i.e. a fixed part) and variable-length strings (i.e. a variable part). Said unit inherently determines whether strings are of fixed length or variable length and stores strings accordingly (i.e., *The fixed part is described using a desired character string and the variable part defines either a name of a variable*

corresponding an output form or format or name of a function describing a calculation formula. Thus, the explaining statement definition storage unit 104 has an output form defining formats of the fixed and variable parts of the explaining statement and an output variable definition defining the variable's name corresponding to the variable part or the function name of the function describing the calculation formula.).

Referring to claim 9, O'Leary teaches the limitation:

"wherein the first data-type is associated with a first column of a table of the database schema, and the second data-type is associated with a second column of the table of the database schema" (Paragraph 0047).

Referring to claim 20, Trappen in view of O'Leary teaches the limitation:

"wherein the generator creates a fixed-length data structure having a predetermined size and a variable length data structure adapted to alternately store an instance of a string-valued attribute" (Trappen Figure 1 and Paragraph 0071 , and O'Leary Column 4 Line 53 through Column 5 Line 6).

15. Claims 10, 15, and 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of George et al. (hereinafter "George") (U.S. Patent Number 6996566).

Referring to claim 10, Trappen does not explicitly teaches the limitations:

"wherein the database schema includes a database constraint adapted to ensure that the set of data object instances include a set of valid attribute values".

George teaches the limitation:

““wherein the database schema includes a database constraint adapted to ensure that the set of data object instances include a set of valid attribute values” (Column 7 Line 26 through Column 8 Line 54, i.e. *MapInfo component 508*). Particularly note the disclosure which states that *MapInfo 508 also dynamically retrieves metadata information 512 about the database by querying the database for its metadata. This provides current information at runtime about the database constraints, attribute size limits, data type limits, and other data limitations.*

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of a database constraint to that the set of data object instances include a set of valid attribute values, as taught by George, to the system of Trappen so that, in the resultant system, the database scheme would include a a database constraint adapted to ensure that the set of data object instances include a set of valid attribute values. One would have been motivated to do so in order to *allow an object mode to be aware of the database constraints and size limitations as well as capable of using semantic information about attributes to adopt policies for dealing with those constraints and limits* (George, Column 2 Lines 11-15).

Referring to claim 15, George teaches the limitation:

“wherein the model application programming interface includes an association balance system adapted to balance an association attribute of the set of data object instances” (Column 7 Line 26 through Column 8 Line 54, i.e. *MapInfo component 508 is built bi-directionally*).

Referring to claim 19, Trappen in view of George teaches the limitation:

"wherein the generator creates a database constraint adapted to ensure that the set of data object instances include a set of valid attribute values" (Trappen, Paragraph 0071 and George Column 7 Line 26 through Column 8 Line 54, i.e. *MapInfo component 508*). Particularly note the disclosure which states that *MapInfo 508 also dynamically retrieves metadata information 512 about the database by querying the database for its metadata. This provides current information at runtime about the database constraints, attribute size limits, data type limits, and other data limitations.*

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✓
16. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of George and further in view of Wetherbee (U.S. Patent Number 5937409).

Trappen in view of George does not explicitly teach the limitation: "wherein the database schema includes a class type attribute identifying each of the set of data object instances as a member of at least one of a plurality of classes".

Wetherbee teaches the limitation:

"wherein the database schema includes a class type attribute identifying each of the set of data object instances as a member of at least one of a plurality of classes" (Column 5 Lines 22-46).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of using class type attributes as taught by

Wetherbee to the system of Trappen in view of George so that, in the resultant system, the database schema would include a class type attribute identifying each of the set of data object instances as a member of at least one of a plurality of classes. One would have been motivated to do so in order to *integrate relational data stores into an object oriented system without requiring the clients of the object system to retain specific knowledge of the relational model or the particulars of executing transactions in one or more relational data stores*" (Wetherbee, Column 2 Lines 52-59).

Referring to claim 12, Wetherbee teaches the limitation:

"wherein the database constraint is conditioned on the value of the class type attribute" (Column 9 Line 62 through Column 10 Line 20). Particularly note the disclosure which states that *The relational mapper is bidirectional such that the relational mapper maps data from a relational database to create objects in accordance with a type system of an object oriented software environment.*

17. Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of George and further in view of Mather (U.S. Patent Application Publication Number 2005/0055363).

Referring to claim 13, Trappen in view of George does not explicitly teach the limitation: "wherein the database constraint is a "not null" constraint".

Mather teaches the limitation:

"wherein the database constraint is a "not null" constraint" (Paragraph 0035).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of employing "no null" constraint in a relational table to the system of Trappen in view of George so that, in the resultant system, the database constraint will be a "not null" constraint. One would have been motivated to do so because it is well known in the art to use not-null constraint in relational tables where data is mandatory.

18. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trappen in view of George and further in view of Horn et al. (hereinafter "Horn") (U.S. Patent Number 5226158).

Referring to claim 14, Trappen in view of George does not explicitly teach the limitation: "wherein the database constraint is an "arc" constraint".

Horn teaches the limitation:

wherein the database constraint is an "arc" constraint" (Column 9 Lines 45-61).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of employing arc constraint as taught by Horn to the system of Trappen in view of George so that, in the resultant system, the database constraint would be an "arc". One would have been motivated to do so in order to maintain referential integrity (Horn, Column 2 Lines 40-43).

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure as follows.

U.S. Patent Application Publication Number 2001/0051948 (Srinivasan et al.)

U.S. Patent Number 6711582 (Aldridge et al.)

U.S. Patent Application Publication Number 2005/0097187 (Thompson et al.)

ACM Transactions on Database Systems Vol. 10, No. 4, December 1985 (D.S. Batory, *Modelling the Storage Architectures of Commercial Database Systems*)

Contact Information

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint

AU-2162

cy

Cam Myint
Primary Examiner
Cam Y. Tuong